

# **THE TACTICAL EMPLOYMENT OF NON-LETHAL TECHNOLOGIES**

**A MONOGRAPH  
BY**

**Major Michael J. Popovich  
United States Marine Corps**



**School of Advanced Military Studies  
United States Army Command and General Staff  
College  
Fort Leavenworth, Kansas**

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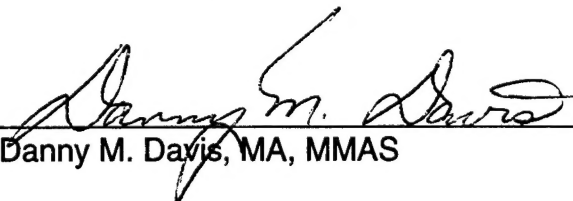
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Major Michael J. Popovich

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Approved by:

  
\_\_\_\_\_  
LTC(P) Christopher P. Baggott, MMAS Monograph Director

  
\_\_\_\_\_  
COL Danny M. Davis, MA, MMAS Director, School of Advanced  
Military Studies

  
\_\_\_\_\_  
Philip J. Brookes, Ph.D. Director, Graduate Degree  
Program

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## **ABSTRACT**

### **THE TACTICAL EMPLOYMENT OF NON-LETHAL TECHNOLOGIES**

by Major M.J. Popovich, USMC, 52 pages

This monograph explores the non-lethal technologies available to and currently being used by the individual soldier and Marine, and focuses on the impact these technologies have on the individual's ability to apply lethal force when the situation so dictates.

This study asserts that while non-lethal technologies increase the force options available to the individual soldier or Marine, they challenge the individual's ability to engage an adversary when the application of lethal force, for either mission accomplishment or self-protection, is required. This monograph provides insight into the physical, legal, and psychological implications of arming the individual with non-lethal means, and employing him in an environment riddled with confusion and uncertainty. The aim of the analysis is determining whether the individual has the ability to transition to lethal force, thereby protecting himself and contributing to his unit's mission.

This monograph concludes that while non-lethal weapons offer increased options for the application of military force in today's international security environment, their true effectiveness will be realized only if those bearing them are properly trained, prepared for the contingency, and guided by realistic rules of engagement.

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## I INTRODUCTION

*For to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill.<sup>1</sup>*

Sun Tzu

For over two hundred years, the military element of our national power has been based entirely on lethal capabilities. The success of Operation Desert Storm, however, created a new paradigm in political and military thought, and provided a glimpse of future warfare that relies on precision guided munitions and “discriminating” technologies. Further complicating future wars is the likely enemy. Martin van Creveld suggests that “in the future, war will not be waged by armies, but by groups whom we today call terrorists, guerrillas, bandits and robbers, but who will undoubtedly hit upon more formal titles to describe themselves.”<sup>2</sup> Regardless of the threat our armed forces may face, the American public will demand that warfare be conducted with precise, surgical skill, and with a minimum of civilian casualties. Non-lethal technologies contribute to that end state.

In traditional land force doctrine, military power is applied at the low end of the spectrum of conflict through warnings and riot control formations, and at the high end through the use of conventional deadly force. There are, of course, several levels of intensity in the application of conventional force, but there is also a gap between the “low-end” deterrence-oriented use and the conventional use of actual combat power. For military planners, this has resulted in a paradigm in which force is viewed as an “on-off switch.” Such a paradigm suggests that you must either deter your adversary, or engage him with some level of conventional force. The recent availability of reliable non-lethal weapons has created opportunities unknown a few years ago. The availability of these

alternatives has profound significance for actions involving humanitarian objectives or peace operations.

Non-lethal technology changes the application of force analogy from that of a light switch to a rheostat; lethality can be scaled up and down instantly. Such flexibility strengthens peacekeeping and peacemaking missions, reduces the possibility of innocent casualties, and, most importantly, protects the individual Marine by allowing him to better control his situation. Lethal force will always be at hand, and the right of self-defense will never be denied.<sup>3</sup>

The Gulf War, our recent experience in peacekeeping missions, and developments in non-lethal technology have resulted in the development and fielding of non-lethal weapons within the military. Such weapons are designed to complement and extend the nation's diplomatic and military options beyond the use of more traditional lethal weapons. Non-lethal weapons have the potential to provide new and innovative ways to accomplish our dangerous mission within the framework of the very restrictive rules of engagement (ROE) typically associated with missions such as peacekeeping, peace making, and humanitarian assistance. Marines and soldiers participating in operations other than war (OOTW) today are armed with a variety of non-lethal weapons and munitions, designed to allow the individual to increase and decrease the amount of force necessary to accomplish the mission.

The focus of this study is the tactical employment of available non-lethal technologies by the individual soldier or Marine, when particular conditions of the environment in which he is in approach the necessity to apply deadly force. The environment in which such technologies have potential application has become familiar to U.S. forces: while feeding refugees in Somalia; providing peacemaking forces in Haiti and Panama; and keeping the peace between warring factions in Bosnia.<sup>4</sup> In each

instance, the individual soldier or Marine entered an environment which lacked the conventional restraints to control, and was charged with preventing the self-serving from exploiting the law abiding. He was faced with the threat of violence from those who saw the United States as a colonialist power, those looking to provoke a riot, or those simply motivated by extreme hunger and thirst. Non-lethal options, properly employed against individual agitators, are less likely to provoke others, and diminish the likelihood of having a situation escalate to the point which can only be resolved with deadly force.

This monograph will determine whether the individual soldier can effectively transition from non-lethal to lethal force when the tactical situation requires lethality for self-protection or mission accomplishment. The non-lethal technologies described herein, and the analysis of their efficient application, are devices which merely provide additional alternatives for accomplishing objectives. When assessing which tools to accomplish the mission, non-lethal options must be evaluated against the same criteria as their lethal counterparts. Factors for this assessment include collateral damage, safety of noncombatants, mission accomplishment, and force protection.

A basic assumption of this study is that the cornerstone of the U.S. Armed Forces' rules of engagement—the right of self-defense—will never be denied to the individual fighting man. Because the means to employ deadly force will always be provided to the individual soldier or Marine, the decision to transition to lethal force from a “less-lethal” option is critical. Non-lethal technology is a growing complex field, involving everything from directed-energy microwaves to aqueous “sticky” foam. This monograph will focus on the currently available non-lethal technologies which are designed for use by the individual soldier or Marine. The monograph will analyze the requirements of



making the transition from non-lethal to lethal force, and determine whether physical, psychological, and legal implications make such a transition possible.

Because non-lethal technology is a relatively new field, the initial focus of this monograph is a brief overview of the non-lethal technologies currently available, as well as a description of the training requirements and employment considerations for the individual armed with non-lethal technology. As with any new weapon or item of equipment, the arming of the soldier or Marine with non-lethal weapons has physical implications. Likewise, the added capabilities of these weapons require additional training and changes to the manner in which individuals and small units are employed. The intent of this section is to provide the foundation for analysis of exactly what is required for making the transition from non-lethal to lethal force.

The monograph will then describe in detail the transition from non-lethal to lethal force. The implications of rules of engagement (ROE), individual psychology, and physical requirements will be discussed. The intent is to examine whether the individual soldier, given the stress of an escalating situation and increasing threat of force, is hamstrung by the non-lethal means with which he is armed.

A discussion of the first and most significant U.S. military of non-lethal weapons and munitions will follow. By examining the experience of the Marines as they prepared for and participated in Operation UNITED SHIELD in Somalia, an appreciation for the challenges of introducing new technologies in an uncertain tactical situation will be gained. The intent is to provide a sample of the effectiveness of individuals employing non-lethal weapons in meeting resistance with the appropriate level of force, specifically when the situation required a sliding scale of force. The aim of this evaluation of past

experiences with non-lethal weapons is to determine what challenges face those tasked with doctrine writing, research and development, and fielding and operational testing of non-lethal technologies.

The analysis of the problem begins by defining the criteria used for analysis. The criteria used for analysis is the ability of the individual to make the transition from non-lethal to lethal force in a manner and speed sufficient to protect himself and impose his will, therefore accomplishing his mission. An assessment of the historical uses of non-lethal technologies, as described in the previous chapter, will help provide an answer to the primary research question. The study concludes that with extensive training and preparation, the individual soldier can effectively transition from non-lethal to lethal force.

## II CURRENT USE OF AVAILABLE NON-LETHAL TECHNOLOGIES

*This nation should no longer tolerate dedicated, professional troops equipped with the wrong tools for new, more complex missions.*<sup>5</sup>

General John J. Sheehan, U.S.M.C.

Over the past several years, U.S. forces have routinely participated in operations at the lower end of the spectrum of conflict. Missions such as peace keeping, peace enforcement, and humanitarian assistance inherently possess special requirements, specifically in terms of the level of force required and the restrictive rules of engagement (ROE). Non-lethal weapons are designed to meet the requirements of what is typically seen as a low-intensity battlefield. These weapons provide U.S. forces with a capability to control events on the battlefield, to subtly respond to provocation, maintain the tactical initiative, and to minimize collateral damage. The Department of Defense Draft Policy Directive for Non-Lethal Weapons defines non-lethal weapons as: "weapons that are explicitly designed and employed so as to incapacitate personnel or equipment, while minimizing fatalities and undesired damage to property and the environment."<sup>6</sup> The objective of the non-lethal weapons designed to target personnel is to disrupt human abilities and senses, and through relatively reversible effects, disrupt or prevent normal operations. A non-lethal weapon can create temporary disorientation, impair the senses, or calm, stun or immobilize personnel.

To achieve the desired tactical outcome, the individual soldier or Marine must be equipped and trained in a manner which ensures a fundamental competency, or core capability. In the case of non-lethal weapons, he must have a means to protect himself, to influence the actions of potential adversaries or noncombatants, and to minimize

collateral damage. The core capabilities associated with non-lethal effects fall into two major categories: anti-personnel and anti-materiel. Current and emerging anti-personnel and anti-materiel non-lethal weapons have a variety of general capabilities. The general capabilities of broad categories of non-lethal weapons are described in Table 2-1. The table also lists some examples of specific non-lethal munitions that fall within each broad category. Though not an all-inclusive list of specific munitions, the examples describe several types that are either currently fielded or are being developed for military use.

While extremely advanced technologies are being explored for future procurement, the services are procuring non-lethal weapons capability sets, comprised of both government and commercial off-the-shelf equipment and munitions.<sup>7</sup> The Marine Corps maintains the most mature non-lethal weapon capability set, a package designed to thoroughly equip a 200-man reinforced infantry company with a variety of non-lethal weapons, as well as provide a residual NLW capability to the remaining companies of the infantry battalion.<sup>8</sup>

The generic non-lethal weapon capability set's components can be divided into four distinct categories: personnel protectors, personnel effectors, mission enhancers, and training devices.<sup>9</sup> Personnel protectors include those items such as face shields and riot shields which protect the individual from blunt trauma injuries inflicted by thrown objects, clubs, etc. Personnel effectors include those items, such as riot batons, stingball grenades, pepper sprays and kinetic rounds, designed to discourage or incapacitate individuals or groups. Mission enhancers include those items, such as bullhorns, combat optics, spotlights and caltrops. They are designed to facilitate target identification and

crowd control. Training devices include those items designed to facilitate realistic, hands-on scenario training in preparation for operations.

Marine Expeditionary Units (MEU) currently deploy with non-lethal weapon capability sets.<sup>10</sup> This equipment is designed to augment, not be a substitute for, existing lethal capabilities. The missions, purposes, and numbers of lethal weapons systems are not replaced by non-lethal capabilities. The capability set components are compatible with fielded military equipment. Capability set munitions are either hand-thrown or fired from 12-gauge shotguns or 40-mm grenade launchers. In all instances, the components of the capability set are technically unsophisticated and easily supportable with current military logistic capabilities.

While any particular non-lethal weapon capability set may possess any combination of weapons and munitions, the sets are designed to fill a gap between the use of deterrence and deadly force when dealing with unarmed (or partially armed) hostile groups. A description of the systems in use today by Marine Expeditionary Units on contingency operations is provided in Table 2-2.

Non-lethal options are a complement to, not a replacement for, the rounds and weapons a soldier or Marine is already carrying, and thus will simply add weight if carried on a daily basis. The commander may choose separate, distinct, non-lethal forces as a type of on-call force multiplier. This will enable the unit to keep non-lethal ammunition, personal protective equipment, and bulky assets in the rear of friendly forces until they are needed, and to carry only lethal ordnance and weapons until the tactical situation calls for non-lethal means. More likely, however, is the instance where individuals armed with non-lethal weapons will stand at the front, prepared to face a

crowd or mob, while armed with the potential to increase the level of force required to maintain control of the situation. In such a case, the individual is likely to be armed with one or more non-lethal means, as well as conventional lethal munitions.

To assure force protection during Operation United Shield, all Marines ashore, including those using non-lethal technologies, carried lethal weapons and had the ability to use lethal force.

Marines using 40mm non-lethal munitions in their M-203 had lethal 5.56mm munitions loaded in their attached M-16s. Marines armed with shotguns using non-lethal munitions also carried lethal ammunition for those shotguns and in some cases they carried loaded M-16s. Marines using "sticky foam" guns all carried their M-16 loaded with 5.56mm lethal ammunition.<sup>11</sup>

While these Marines possessed the capability to adjust the level of force required to face the situation they faced, they undoubtedly carried additional weight. Riot situations like those faced by soldiers and Marines in Somalia require enormous physical strength and endurance, and the heat and humidity of likely areas of U.S. involvement will sap energy quickly. All measures to reduce the load on the individual will keep him fresher, more alert, and more able to withstand the rigors of working in a stressful and physically draining environment.

Both the Army and the Marine Corps continue to develop and test equipment designed to effectively maintain the advantages of non-lethal weapons while minimizing the impact of additional weight. Because in all cases the delivery system for non-lethal munitions is capable of firing lethal rounds, the actual differences center on a system for carrying non-lethal rounds, hand-thrown projectiles, and personal protective equipment. The individual soldier or Marine armed with non-lethal technologies will likely have a face shield attached to his kevlar helmet, and will carry a collapsible thirty-two inch

baton, several stinger grenades, and a variety of non-lethal rounds, to be fired from either a shotgun, or an M203 grenade launcher (attached to an M16 rifle).<sup>12</sup>

Table 2-3 describes the structure of a platoon-sized riot control force of 42 men, based on the current Marine Rifle Platoon table of organization. All members of the force are equipped with face shields and batons, as well as weapons capable of delivering lethal munitions. Items such as oleoresin capsicum (pepper spray), full body shields, and special non-lethal munitions are distributed throughout the platoon to provide the required anti-personnel capabilities.<sup>13</sup> With the exception of those individuals carrying full body shields, the weight added by the introduction on non-lethal technology is minimal.

A system of pouches, attached to the individual's combat gear, has been designed to effectively carry the additional non-lethal rounds. While the weight of the system and the accompanying rounds is not prohibitive, the individual's mobility is degraded, and the added stress of maintaining additional munitions in a restricted environment must be considered by the commander. While refinements to the current pouch system will undoubtedly proceed with time, thorough and continuous training will maximize the efficiency of the individual armed with non-lethal technology.

The successful accomplishment of any operation in which non-lethal technologies are employed requires extensive preparation, of which individual, unit, and team training are vital parts. Non-lethal training is designed to give each individual an understanding of the entire subject area and to enable him to function efficiently both individually and as a member of a unit.

Conventional training methods for the individual infantryman have as one goal the development of an instinct to engage with lethal force. From the first experience on the rifle range, and throughout all “live fire” training, the individual is constantly trained to point his weapon at something only when his intention is to lethally engage it. The individual must be trained to recognize that non-lethal technologies are nothing more than another tool available to accomplish the mission.

Fundamental to employing non-lethal technologies is an understanding of the force continuum. Historically, military objectives were achieved at the tactical level by killing or destroying the enemy. Because the force applied was always deadly, the effectiveness of the force was judged only to the extent and rate at which death or destruction could be achieved. Force applied in this manner presents a significant gap between presenting a threat and carrying it out.

When force is considered as a continuum, other options become available. At the low end of the force continuum is a threat, while at the other end lies deadly force.<sup>14</sup> The introduction of non-lethal technologies to the conflict permits the commander to apply force at varying levels. Movement from one of the force continuum to the other presents a variety of options, and the transition from a low-end option to a high-end option is continuous and seamless. Proceeding from the low end of the continuum to the high end, options include threats, area denial, infliction of physical discomfort without trauma, infliction of physical trauma, and lethality.<sup>15</sup> It is critical that lethal options be regarded as part of the force continuum and not as a separate option altogether.

In addition to an understanding of the force continuum, individuals must receive technical training related to the characteristics and capabilities of the non-lethal



munitions, as well as tactical training related to the threat likely to be present in a situation requiring the use of non-lethal technologies. In establishing a training program for Marines preparing to employ non-lethal technologies in Somalia in support of Operation United Shield, the mobile training team attempted to define the problems which could be anticipated by leaders in the planning and employment of the new alternatives.

For the initial training phase, the team ultimately developed a program of instruction which included an introduction and threat brief, types of crowds, types of mobs, dismounted tactics, and force multipliers, as well as special weapons and decision making. The officers and senior staff noncommissioned officers received extended training in decision making and crowd and mob control techniques by watching actual footage of riots and participating in tactical decision sessions.<sup>16</sup>

As with the introduction of any new technology, effective individual and unit training requires both standardization and quality instruction. Current and historical training models lack individual or collective non-lethal weapons training standards. The lack of standard instructor training, and a standard validation/certification process, may result in a lack of standardization across the services.

The Marine Corps and Army developed a Program of Instruction (POI) for a Non-Lethal Individual Weapons Instructor Course (NIWIC), the only formal DOD non-lethal training course.<sup>17</sup> The training requirements outlined in the course represent the minimum subject areas to be considered for inclusion in the development of non-lethal weapons instructors. Verbal communication skills, open hand control techniques, chemical agents, impact weapons, and civil disturbance Tactics, Techniques and Procedures (TTPs) are areas trained to standard at the Military Police School at Ft. McClellan Alabama.<sup>18</sup>

Within I Marine Expeditionary Force (I MEF), a cadre of non-lethal instructors, drawn from a Military Police Company, train members of deploying Marine Expeditionary Units (MEU) and other forces designated by the Commanding General of I MEF.<sup>19</sup> Prior to deployment, a company-sized force is trained in non-lethal weapons and munitions, and serves as nucleus for non-lethal capability within the MEU. The initial training period consists of two weeks, during which students participate in both classroom instruction and practical application which covers tactics, techniques, and procedures involved in the employment of non-lethal technologies.

The most complex aspect of training, one which requires a thorough understanding and commensurably more time, concerns the employment concepts of non-lethal technology. Many of the issues raised in the employment of non-lethal weapons are foreign to most soldiers and Marines and require a thorough understanding to provide the requisite level of confidence to ensure a smooth integration into employment. The decision to employ non-lethal technologies must be pushed to the lowest possible level. Commanders who intend to employ non-lethal technologies to achieve tactical objectives must realize the fluid nature of the situations in which they are likely to be employed. The decision making cycle is short and stress-filled, and the force continuum can move in both directions with the passage of time. The employment of a non-lethal munition could be followed by a decision to employ lethal force to a specific threat, followed in return by a non-lethal means to respond to unarmed, but hostile elements.

Non-lethal options are only one element of a graduated response available to the commander. Other elements short of deadly force, such as psychological operations and

barrier plans, may contribute largely to tactical success. Further, non-lethal munitions and weapons are *not* completely non-lethal. Virtually every device has the potential of causing serious injury or death if not properly used. Concepts such as force continuum, reasonable and necessary force, escalation of force and minimum and maximum effective ranges need to be thoroughly understood to avoid creating confusion in planning issues, rules of engagement or methods of employment.<sup>20</sup> The effectiveness of non-lethal alternatives is wholly dependent upon proper employment based on a thorough understanding of these concepts.

Because of the reduced likelihood of permanent injury when employing non-lethal options, a propensity exists for their premature employment or overuse. These actions can precipitate undesired responses and commit a friendly force to an undesired course of action by forcing a situation which calls for self-defense with deadly force. If armed with non-lethal means, the young soldier or Marine will likely believe there is a strong possibility that a non-lethal round is sufficient to accomplish the mission, and may be hesitant to make the transition from non-lethal to lethal force.

Non-lethal options embrace a "minimum force doctrine" which holds that only the minimum amount of force necessary to accomplish an objective should be used.<sup>21</sup> Consequently, patience and restraint are often more critical than boldness and aggressive actions. A thorough understanding of the threat, capabilities and motivations of the adversary is fundamental for a tailored and graduated response to compel compliance without instilling more resilience and defiance. When all attempts at compliance fail however, the individual soldier or Marine must have the physical, psychological, and legal ability to act to protect himself and accomplish the mission.

### III RULES OF ENGAGEMENT

*In considering the use of any weapon, new or old, two questions must be answered. First, can this weapon legally be used? Second, if the first question is answered in the affirmative, is the proposed use of this weapon legal?* <sup>22</sup>

Major William J. Neinast

When employing non-lethal technologies in an environment suited for their use, commanders at all levels must consider the possibility that the individual soldier or Marine might be forced to transition from non-lethal to lethal force. Whether facing an increasingly agitated crowd, a distant sniper, or an individual who chooses martyrdom to provoke violence, the soldier or Marine may be required to employ lethal force to ensure self-protection or mission accomplishment. The local conditions which require a transition to lethal force will undoubtedly be confusing and stressful, and will require rapid, appropriate action. Similar to "conventional combat", the situation requiring the application of lethal force is characterized by the requirement for aggressive small unit action and for overcoming individual fear. When non-lethal options must be forsaken, other factors, such as rules of engagement and individual psychology complicate the decision-making process.

Every soldier or Marine serving in a hostile or potentially hostile environment, regardless of how he is armed, must understand the rules of engagement (ROE). The most critical ROE are typically those which address the discharge of individual weapons. Because most hostile confrontations normally consist of small-unit battles, with leaders at the platoon and squad level controlling their immediate surroundings and reporting to their higher headquarters only when time permits, the individual soldier or Marine must

be able to make the decision whether to engage or not to engage his adversary on his own and when under pressure.

The contingency U.S. military forces are most likely to be called to respond to is one involving peacekeeping, peace enforcement, and/or humanitarian assistance. Rules of engagement are critical in these types of operations. Without exception, from operational plan to tactical execution, every action is shaped and adapted to conform with the constraints and restraints imposed by the ROE.<sup>23</sup> Military forces participating in peacekeeping or peace enforcement operations will undoubtedly be called to apply some level of force, however minimal, at some point during the operation. ROE provide the basis for the legal imposition of military force.

Critical to the effective use of non-lethal technologies is the authorization to employ them. In peacekeeping efforts, rules of engagement must define those conditions that will allow the individual soldier or Marine to protect himself, and at the same time constrain the individual to the minimum force necessary for mission accomplishment. A dilemma exists in defining those circumstances in which force is justified, and to what extent. While ROE that are too rigid may deprive the force of the required initiative and thus jeopardize the individual, ROE which are too loosely defined may result in the escalation of tension and compromise the mission. ROE are critical to the success of the mission, and poorly-crafted rules will not provide the necessary balance for ensuring both the legitimacy for enforcement, and achieving the support of the population.<sup>24</sup>

The type of action which U.S. forces participate in is critical in defining appropriate ROE. Peace keeping and peace enforcement, for example, are different missions which require different ROE. An individual participating in a peace keeping

mission is guided by ROE which constrain him to use the minimum force necessary to accomplish the mission.<sup>25</sup> The ROE for peacekeeping missions are designed to prevent the start or escalation of conflict. Such ROE are inherently defensive in nature, and frequently require demonstrated hostile intent, or hostile action, before justifying the application of deadly force.

Military forces participating in operations other than war must possess the ability to adapt and use force proactively. Although OOTW missions may not require “direct combat engagement,” ROE for OOTW missions are based on the Standing Rules of Engagement (SROE).<sup>26</sup> In peacetime, the SROE allow the use of force only in self-defense, and only when the individual or unit is threatened by hostile act or hostile intent. A dilemma for the individual soldier arises because hostile intent or a hostile act must be present before force can be applied under the current SROE. This policy is defensive in nature, as it relies on demonstrated hostile intent or hostile actions of the adversary.

The SROE appropriately address the application of military force in situations of unit or self-defense. Likewise, these rules adequately support the application of force in traditional military missions, where the opponent is easily identifiable, and is clearly a threat to mission accomplishment. However, many OOTW missions require different force option, especially at the lower end of the force continuum.

The SROE promote a policy of *disengagement*, which is designed to prevent the start or escalation of a conflict. Many MOOTW missions require a policy of *engagement*, one in which military forces are deliberately inserted into a crisis or conflict environment to restore peace and security. Accordingly, MOOTW forces require the flexibility to take the initiative and use force *affirmatively* in certain circumstances; they cannot accomplish their mission with *reactive*, self-defense only ROE.<sup>27</sup>

The operations which U.S. forces are most likely to participate in require ROE which allow for the application of military force consistent with mission accomplishment, but in the absence of demonstrated hostile intent or hostile act.

Legal issues which address the use of force in international conflict are complicated. The legal principles which govern the use of force by nations are different from those under which the United Nations Security Council operates. Chapter VII of the UN Charter allows the Security Council to authorize the use of "all necessary means" to respond to a threat to international peace and security.<sup>28</sup> Security Council actions do not require self-defense or unit defense as a basis for force application. Compared to the criteria for self-defense embodied by the SROE, the mission-driven ROE suggested by the Security Council's policies provide the commander greater discretion to face the diverse challenges of the OOTW environment.

The ROE for Operation UNITED SHIELD in Somalia were first issued by the Joint Chiefs of Staff on 4 February 1995, approximately three weeks prior to the main landing of over two thousand U.S. and Italian Marines.<sup>29</sup> The provisions of the ROE which addressed unarmed crowds and unarmed hostile elements were based on the principle of a graduated response, and the application of the minimum force necessary to respond to the threat.

If CTF/UNOSOM II Forces are attacked or threatened with the imminent use of force by unarmed hostile elements, mobs, and/or rioters, forces are authorized to employ the minimum force required to repel the attacks or imminent threat of attack. If conditions permit, the following measures should be employed. Prior to resorting to force: verbal warning to demonstrators, show of force including riot control formations, and use of riot control agents.<sup>30</sup>

The final copy of the ROE, however, was received just prior to the landings on 28 February 1995. The non-lethal ROE were intertwined with the entire text of the ROE, despite requests from the Task Force that the “basic ROE” be approved as soon as possible.<sup>31</sup> The complete text of the ROE contained arbitrary restrictions on the use of certain crowd control devices, namely, the use of 40mm bean bag and rubber baton rounds. These restrictions were based on the assumption that there is a clear distinction between the use of deadly force and all other means of force. This approach failed to consider the experience within the law enforcement field which views the use of force as a continuum of action rather than a black or white alternative. All of the non-lethal technologies originally approved for use in Operation UNITED SHIELD were developed based on the force continuum.

The current U.S. military rules for the use of force, which make an arbitrary and unnecessary distinction between the use of deadly force and lesser means, created problems during preparations for Operation UNITED SHIELD. The limitations imposed by the ROE made no sense to the non-lethal mobile training team and the individual Marines. If a soldier or Marine must wait until deadly force is authorized—until his own life is at risk—before engaging the enemy with a bean bag or rubber baton round, why should he resort to non-lethal means at all?<sup>32</sup>

When choosing to engage an adversary, the individual must be confident that his decision is not only legally correct, but that his actions are morally correct and contribute to mission accomplishment. The challenges created by OOTW missions require new tactics, new capabilities, and new rules of engagement. Non-lethal technologies have been developed to increase the number of options available to the commander assigned a



complicated and often confusing mission. The traditional military force paradigm does not apply to these missions, and may jeopardize our ability to successfully prosecute OOTW missions. If those drafting the rules of engagement for the use of non-lethal technologies in a hostile encounter truly understand their capabilities and the basis of their design, the ROE will be both flexible and relevant. Adoption of an annex to the SROE which allows the use of force for mission accomplishment in circumstances that do not meet the hostile act/hostile intent criteria for self-defense will increase our chances of success.<sup>33</sup> To protect the individual, every attempt must be made to facilitate a naturally difficult decision – the decision to apply deadly force to a hostile opponent.

#### IV THE PSYCHOLOGY OF KILLING

*Studies by Medical Corps psychiatrists of the combat fatigue cases in the European Theater ... found that fear of killing, rather than of being killed, was the most common cause of failure in the individual.*<sup>34</sup>

S. L. A. Marshall

The stress of making a legally correct decision to engage a potential adversary is compounded by the psychology of the possibility of killing another human being. A humanitarian or peace keeping mission in itself can be an emotionally shocking experience for those involved. Witnessing the poverty and anguish of fellow humans will require a period of adjustment even for the best-trained forces. While the ability to employ non-lethal options when confronted with a threat adds emotional stability, hostile acts which require a transition to deadly force can be extremely traumatic to the individual soldier or Marine. When those whose situation you are trying to assist become hostile and pose a threat, emotional distress and confusion can overload the decision making process.

The violent mob which may be encountered in peace keeping or other OOTW missions differs in many respects from a conventional "enemy." Although a violent mob may be as formidable as an army, it normally lacks the conventional attributes which the individual serviceman is trained to face. Because a mob may evolve from a relatively harmless gathering of people into a more cohesive and aggressive threat to individual safety and mission, every observable action of the individual soldier or Marine becomes critical. He may find himself confronted by a potentially hostile crowd where armed fighters are mixed with large groups of innocent civilians, especially women and

children. The true adversary in such an environment occupies a niche in which he is very difficult to deter or control--and one against which the individual soldier or Marine is normally unwilling to apply lethal force. Even in self-preservation, the decision to apply deadly force in such a situation is complicated by individual psychological stress.

Killing in combat is, unquestionably, a profoundly traumatic experience. There is a powerful resistance in most individuals to killing their fellow human beings, and most individuals seek to avoid a confrontation which requires application of deadly force to ensure personal survival. While the individual soldier or Marine has a number of response options when confronted with interpersonal aggression (fight, flight, posture or submit), the decision to fight is most likely his best option when elements of a mob present the threat of bodily harm or death. Despite an instinctual reluctance to kill, there are a set of circumstances and pressures that can cause most human beings to overcome this resistance. These factors include target attractiveness of the victim, total distance from the victim, predisposition of the killer, and the demands of authority.<sup>35</sup>

Whether consciously or not, the individual serviceman faced by a hostile adversary in close proximity makes an assessment of his potential victim. Israeli military psychologist Ben Shalit's model describing the nature of the victim considers the victim himself and the tactical circumstances associated with the combat kill.<sup>36</sup> Shalit's work suggests that the individual soldier or Marine considers his available options and their potential payoff in terms of the victim's relevance and the effectiveness of available options for killing the victim. While the individual serviceman participating in an OOTW mission may initially feel sympathy toward those he is tasked with assisting or protecting, it is not unreasonable to assume he will also develop feelings of physical and

social superiority over those who challenge his authority. Such feelings of superiority, when faced with the threat of imminent harm or death, may enable the individual serviceman to overcome his resistance to killing.

Resistance to killing appears to be greatly influenced by the physical distance separating the individual from his opponent. John Keegan in *The Face of Battle* notes that:

...only a fraction of one percent of all wounds at the Battle of the Somme in World War I were inflicted with edged weapons – and most of them in the back. Interviews and research reveal countless incidents in which combatants confronted with an enemy soldier at close range did not fire, but when faced with an enemy who could be attacked with a hand grenade, or who could be engaged at medium range or long range, the incidence of non-firing behavior goes down significantly. At the greatest range, among high-altitude bombers or artillery crews, incidents of refusal to fire are extraordinarily rare.<sup>37</sup>

Physical distance is a critical factor when considering the transition from non-lethal to lethal force in a civil disturbance or riot control environment. Elements of a hostile mob whose actions require the application of deadly force by the individual soldier or Marine will likely be in very close proximity, and will allow little time to take appropriate measures of self-defense. The individual soldier or Marine faced with the decision to engage with lethal force will likely be overcome with fear and stress, and the physical proximity of his potential victim may detract from his ability to apply kill his enemy.

Like physical distance, increased emotional distance between killer and potential victim enables the individual soldier or Marine to overcome his instinctual resistance to killing. Emotional distance includes the process of dehumanization of the victim, permitted by cultural, racial, and ethnic differences.<sup>38</sup> U.S. forces participating in OOTW missions will also be subject to moral and social distance founded, wrongfully or

not, on the belief of moral and social superiority over a particular class of people whose way of life and system of values appears foreign at best. From an emotional standpoint, however, the greatest psychological leverage is gained when the killer does not have to see the victim's face. Israeli research has determined that hooded hostages have a significantly greater chance of being killed by their captors.<sup>39</sup> Such an enabling process will not be available to the individual soldier or Marine in a self-defense situation. Despite probable emotional distance from a moral and social standpoint, the killer will be forced to engage his victim face to face.

Studies dating as far back as World War II suggest that only a very small percentage of combat soldiers do not possess the normal resistance to killing and are "psychologically pre-disposed" to violent aggression.<sup>40</sup> The clinical term for an individual so pre-disposed is "aggressive psychopath," and despite the term's negative connotation, it is just such an individual whom for centuries armies have been extremely good at utilizing. Psychologist Michael Grossman believes that there exists in all of us a genetic predisposition for aggression, one that when, combined with certain environmental development and the absence of empathy, can result in violent aggression.<sup>41</sup> Because the predisposition of the individual is influenced not only by his individual temperament, but also by his training and conditioning, commanders must ensure the troops under their charge in an OOTW mission are prepared psychologically. Attaining a delicate psychological balance between the need for self-restraint and possible requirement to apply force to ensure self-protection is a considerable challenge.

The individual soldier or Marine's propensity for killing is also influenced by the demands of authority. Dr. Stanley Milgram's famous and controversial experiments in

the 1950's, involving electrical shock administered to a "victim" by an individual in very close physical proximity suggest the important influence of an authority figure.

Milgram's experiments suggest that the individual's propensity to inflict shock was greatly influenced by the proximity of the authority figure to the individual, the individual's subjective respect for the authority figure, the intensity of the authority figure's demands, and the legitimacy of the authority figure's demands.<sup>42</sup> The individual soldier or Marine forced to make the transition from non-lethal to lethal force in self-defense will have the support of his leaders at every level. Leaders must be cognizant of the impact of their authority in preparing their troops for OOTW missions; too much emphasis on self-restraint, and too little on the individual's right of self-defense, may limit the individual's ability to apply lethal force at a critical time.

Many factors will influence the individual soldier or Marine's ability to make the transition from non-lethal to lethal force when confronted with a hostile threat. While some of the psychological factors are immutable, leaders at every level must ensure that training and preparation for the assigned mission produces the desired effect — an individual who fully understands the intricacies of the necessary rules of engagement, but who can overcome his instinctual resistance to killing to protect himself. Achieving this delicate balance is critical to the future success of U.S. servicemen tasked with achieving our nation's strategic goals.

## V NON-LETHAL TECHNOLOGIES IN SOMALIA

*The challenge, in cases where lethal force is restricted by the risk of casualties and collateral damage, is to improve our ability to accomplish missions while providing better protection to U.S. soldiers.<sup>43</sup>*

Lexi R. Alexander and Julia L. Klare

In December 1994, I Marine Expeditionary Force (I MEF) and other coalition forces were assigned to support Operation UNITED SHIELD, the withdrawal of United Nations forces from Somalia. Foreseeing the value of non-lethal force applied in a crowd control situation, Lieutenant General Anthony Zinni, the Commanding General of I MEF, tasked his staff on December 29 to consider the use of non-lethal technologies available for use in Operation UNITED SHIELD.<sup>44</sup> The subsequent use of non-lethal weapons by U.S. Marines during the evacuation of U. N. personnel from Somalia generated a flurry of media attention, discussion and controversy. The lessons learned by I MEF Marines in preparing for and conducting the evacuation merit the attention of operational planners of all military services.

In response to General Zinni's tasking, I MEF formed a Mobile Training Team (MTT) composed of individuals from the MEF Staff, Camp Pendleton military police, the Los Angeles County Sheriff's Office, Phillips Laboratories, and the MEF's Naval Science Assistance Program. During the period 4-27 January 1995, the Mobile Training Team attempted to identify and acquire equipment, munitions and weapons with which to accomplish their mission.<sup>45</sup> An intensive investigation was conducted with local non-lethal experts from the law enforcement community as well as vendors which supplied

law enforcement needs. Several demonstrations and tests were conducted, and critical factors were identified, prior to decisions regarding the use of these items.

A number of off-the-shelf non-lethal options were acquired, tested and ultimately transported to the CENTCOM AOR in support of the U. N. evacuation of Somalia. Within thirty days, the MTT acquired a suite of weapons, munitions and equipment it believed necessary to support a reinforced rifle company in a crowd control/civil disturbance scenario. The suite included oleoresin capsicum (OC) (pepper spray), sticky foam, aqueous foam, low-intensity hand-held lasers, stingball grenades, batons, caltrops, and a number of non-lethal munitions (bean bag, foam, and pellet rounds).<sup>46</sup> Although some of the munitions had been employed by law enforcement agencies, many were still in their developmental stage and had not seen service prior to Operation UNITED SHIELD.

On 30 January 1995 the MTT deployed to Mombassa, Kenya where preparations were made for the arrival of the 13<sup>th</sup> MEU(SOC).<sup>47</sup> The 13<sup>th</sup> MEU(SOC) was deployed to the CENTCOM AOR, and as I MEF's major subordinate element in theater, had been assigned the responsibility for safely evacuating United Nations personnel and equipment in Somalia in late February or early March of 1995. To validate the contingency plan and to undergo sustainment training, the coalition forces were scheduled to participate in an amphibious training exercise in the Ungama Bay area of Kenya. One of the 13<sup>th</sup> MEU(SOC)'s training objectives for the exercise was "to conduct ground small unit training and integrated aviation training to maintain skills."<sup>48</sup> The non-lethal MTT seized the opportunity to train Company I, Battalion Landing Team (BLT) 3/1, on the fundamentals of non-lethal employment.



Training for Company I began on 6 February 1995, less than three weeks before the company came ashore in Somalia.<sup>49</sup> One of the MTT's primary goals was instilling in the Marines a high degree of confidence in the applicability of non-lethal alternatives. The MTT considered this confidence level to be essential for two reasons. First, the situation in Mogadishu, Somalia had deteriorated to a state of anarchy. Other rifle companies would train extensively in achieving their objectives with conventional tactics and weapons while members of Company I would undoubtedly experience anxiety and reservations about employing new non-lethal alternatives in circumstances which had been historically resolved only through the use of deadly force. Second, the MTT believed that the fundamental concepts of employment were much more critical than the technology used to support them and required an increased level of training to ensure a thorough understanding.

In order to establish some measure of competence, a series of standards and conditions were identified. These tasks, conditions and standards described essential information for virtually all of the non-lethal options and munitions. A series of checklists were developed which provided an ability to quickly determine a minimum level of understanding for individual Marines as they progressed through the training cycle. These proved useful not only in determining a level of competence but in identifying training needs and providing an infrastructure to organize future training.

A particularly critical aspect of the training program was preparing to encounter a potentially hostile crowd. In this regard, a key objective for the force was neutralizing the actions of an agitator bent on increasing the level, or threat of violence. Marines were taught that in a riot situation, each member of the mob has a different level of

commitment; each is willing to pay a different price to remain a member of that mob. For hard core members, this price might be as high as death. While the ideal situation for the Marines would be to affect such an individual with the minimum amount of force, all realized the possible requirement for lethal force, for either self-protection or mission accomplishment.

In employing Company I, BLT 3/1 as a non-lethal force, a decision was made to back the company up with teams of snipers and other designated marksmen specifically tasked to engage and kill individuals or groups who demonstrated hostile intent or committed hostile acts which threatened the mission or the lives of the force.<sup>50</sup> This decision was based on the ability of the sniper/marksman to rapidly and accurately engage a potential adversary. Company I felt strongly that by arming sniper teams and designated marksmen with lethal means of force and positioning them on key terrain, the reaction time for dealing with a life- or mission threatening adversary would be significantly reduced.

Based on the observations during a 14 February leader's reconnaissance, additional equipment was requested and the ongoing training was modified to better accomplish the mission.<sup>51</sup> Training modifications included pain compliance control techniques, provocative resistance training in formation, and the necessity of pushing decision making to the lowest possible level. This required more intensive training in non-lethal tactical fundamentals in the lower ranks of the Marine rifle squads and fire teams.

The MTT and the Marines of Company I experienced numerous difficulties in dealing with technologies still in the developmental stage and unfamiliar to the

individual Marines. Meaningful training at the troop level required practical application and demonstrations. More advanced training required live fire and exercises. It was very difficult to conduct training during the limited available time, and on the flight deck of the USS Ogden, the amphibious ship on which Company I was embarked.<sup>52</sup> Constraints such as time, space, and limited training munitions challenged both the MTT and the leadership of Company I.

As mentioned earlier in this study, the rules of engagement for Operation UNITED SHIELD challenged the individual Marines participating in the evacuation. The ROE UNITED SHIELD defined the circumstances and conditions for which force was authorized. Included in the "lethal category" was sticky and aqueous foam, stingball grenades, and all the (non-lethal) munitions which would cause trauma.<sup>53</sup> Since these devices could only be employed under circumstances which justified deadly force, confusion was created as to circumstances which did not require deadly force but could justify the use of non-lethal options. The ROE initially rendered non-lethal force useless.

For better or for worse, the press focused the majority of its attention on non-lethal technology during Operation UNITED SHIELD. As the operation approached its culminating point, media activity intensified. Much of the coverage was not helpful from an Operational Security (OPSEC) perspective. From the OPSEC point of view the media coverage created two concerns. It provided advance information to the Somalis thereby providing them an opportunity to prepare defenses and responses. Second, it put the Combined Task Force (CTF) in a highly visible position and created unrealistic expectations by which the CTF might be unfairly judged should the situation arise where non-lethal systems were not appropriate and deadly force was required.

Non-lethal munitions and weapons were brought ashore during the landings in Somalia on 28 February 1995 and were deployed primarily under the control of Company I and BLT 3/1. The primary landings occurred on 28 February when over two thousand U. S. and Italian Marines came ashore to establish and secure a perimeter for the withdrawal of Pakistani and Bangladeshi soldiers.<sup>54</sup> The final withdrawal was conducted by amphibious vehicles in the early morning hours of 3 March.<sup>55</sup> Because the operation was carefully planned and executed, with advance effort in the areas of diplomatic initiative and public awareness, there was no significant problem with crowd control or rioters during UNITED SHIELD. The 40mm and 12 gauge shotgun-delivered non-lethal means of force were not employed, and there was limited use of sticky foam to supplement key barrier systems at night during the final hours of withdrawal.<sup>56</sup> Despite the fact that non-lethal options saw limited use during the actual, conduct of the operation, several conclusions regarding the combined use of non-lethal and lethal alternatives can be drawn.

In terms of capabilities and acquisition, UNITED SHIELD revealed a significant shortcoming in the U. S. military's capability to identify and deploy non-lethal alternatives. To ensure a task force commander has a wide range of alternatives for use in the control of unarmed hostile elements, planning must begin as early as possible when a need is identified. In deciding whether to use non-lethal systems, the choice must consider whether the non-lethal options available are compatible with, and whether they compliment existing weapons and training.

In training a force in the use of non-lethal alternatives, traditional wartime skills, such as returning a high volume of fire immediately when fired upon, must be modified.

The product of non-lethal training must be an individual soldier or Marine skilled in the use of the new technology, but confident in his ability to apply both non-lethal *and* lethal force. The non-lethal MTT's after action review paints a compelling picture of the view toward the application of force:

At the outset the MTT was supplied with weapons, munitions, and cutting edge technology. The Marines were trained on these items and instructed on their use, limits and associated first aid related to their use. Prior to the operation, the use of these items (lasers, sticky foam, and aqueous foam) was on a seesaw. One day we were told they were approved for use and the next they were not. The day we went ashore we were not certain which items had actually been approved for use. The biggest impact of this hesitancy and confusion was the loss of confidence in these weapons systems by the Marines called upon to wield them. Much of the confusion connected to these weapons appeared to be due to well-meaning people giving briefings on the weapons, absent full knowledge of the system.<sup>57</sup>

The experience in Operation UNITED SHIELD provides a number of lessons concerning the use of new technologies to compliment traditional notions of military force. Prior to employment, the leadership must demand that clear and unambiguous guidelines and ROE for the employment of non-lethal options appropriately protect the individual and allow for mission accomplishment. Just as important, non-lethal options must be viewed as a tool, a particular means of employing force, rather than as a panacea. In developing and employing such technologies, basic tenets must be adhered to and the military establishment must field the best systems available to protect our personnel, save lives, and accomplish the mission.

## VI ANALYSIS

This monograph has examined the non-lethal technologies currently available and employed by individual soldiers and Marines, and has briefly described how the individual is armed, trained and employed to maximize the advantages provided by non-lethal technologies. The discussion showed that while non-lethal options provide increased flexibility in applying force below the threshold of deadly force, legal and psychological factors complicate the decision to forsake non-lethal options when the tactical situation so dictates. The analysis in this chapter will focus on the impact of physical, legal and psychological factors involved in making the transition to legal force, and will provide an answer to the primary research question – whether or not the such a transition can be effectively executed.

The criteria to determine the individual's ability to effectively transition from non-lethal to lethal force includes speed and efficiency of execution. The transition must be made quickly enough to allow the individual to protect himself (i.e., quickly enough to engage the enemy before the enemy engages him), and smoothly enough to ensure accuracy in the engagement. Similar to executing the rapid fire sequence on a rifle qualification range, the individual soldier or Marine making the transition to lethal force must take certain steps in a short span of time to accurately engage his adversary. Unlike the pristine environment of the rifle range, however, the situation which requires the transition to lethal force is inherently complicated by uncertainty and aggravation.

Once the individual has made the decision to apply lethal force, time becomes a critical factor. As time from the moment of decision until the actual engagement

increases, the risk to the individual, and possibly the mission, increases. The time required by the individual will be affected by the physical requirements of the transition from a non-lethal munition to a lethal one, and by impact of stress produced by the legal and psychological implications of making the transition. While effective training will minimize the impact of the physical requirements of the transition, the impact of the psychological factors is clearly more difficult to affect and predict. As such, the time required for the transition to lethal force will be different for every individual.

The physical requirements to transition from non-lethal to lethal force are neither prohibitive nor time-consuming. Based on the assumption that the individual soldier or Marine will be armed with both non-lethal and lethal options, few steps are required to unload or disable non-lethal rounds, and make the transition to lethal force. For the individual armed with an M16 rifle and an attached M203 grenade launcher, the transition is simple. The individual must insert a magazine of lethal rounds in his M16, flip a selector switch to activate the direct fire mechanism of the weapon, and engage his target. The individual armed with a shotgun, on the other hand, must unload non-lethal rounds and insert lethal rounds. Basic weapons training for both the M16/M203 and the shotgun includes the actions described above. Any well-trained soldier or Marine can execute a magazine change or an ammunition change (for the shotgun) in a matter of seconds. Immediate action drills and rehearsals are required at every stage of training as well as prior to any military operation. Well-trained and properly-prepared individuals armed with non-lethal munitions can rapidly and efficiently meet the physical requirements to transition to lethal force in a timely manner.

Because many of the non-lethal technologies currently available to ground units participating in crowd control or civil disturbance missions are designed to cause discomfort or even physical trauma, their use brings with them legal and moral implications. The relatively recent introduction of these technologies into military operations suggests that the legal debate surrounding their employment will continue. ROE restrictions pertaining to the use of non-lethal options which were arbitrary and did not allow for the distinction between the use of deadly force and all other levels of force resulted in confusion for Marines participating in Operation UNITED SHIELD. If the limitations imposed by the ROE force the soldier or Marine to wait until deadly force is authorized before a non-lethal option can be used, the incentive to respond with a non-lethal means no longer exists.

Any hesitation in employing lethal force when the situation calls for it may result in the death of a soldier or Marine. Unclear, ambiguous rules of engagement (ROE) create confusion regarding when lethal force is *legally* authorized. The soldier or Marine in a peace keeping or peace enforcing mission, encouraged throughout his preparation to show restraint, armed with non-lethal technology, and drilled incessantly to understand the appropriate ROE, enters a potentially hostile environment with a particular mindset. Knowing he is authorized the use of deadly force only when hostile act or hostile intent is clearly demonstrated, he is likely to resort to a lethal means only when the threat becomes imminent. With an already-reduced span of time to react, any internal struggle regarding the legality of his actions slows the transition to lethal force and increases his chances to be injured or killed.



Army and Marine leaders preparing their troops for OOTW missions dedicate a great deal of time to ROE training. When the ROE regarding the use of deadly force are clearly understood by the individual soldier or Marine, the likelihood that the individual will apply deadly force absent the belief that he is being threatened is minimal. Clear, concise rules of engagement which consider the force continuum, allow the individual to use different levels of force, and make a clear distinction between non-lethal and lethal force allow the transition to occur without hesitation on the part of the individual.

The influence of psychological factors involved in the transition from non-lethal to lethal force are the most difficult to quantify and nearly impossible to predict. As mentioned earlier in this study, there are a finite set of psychological factors which may enable the individual soldier or Marine to overcome his instinctual resistance to killing another human being: the "attractiveness" of the target; the distance from the target; the psychological predisposition of the killer; and the demands of authority. Enabling the individual armed with non-lethal technologies to overcome his instincts need not be any more difficult than enabling the individual armed with conventional lethal force. The individual armed with non-lethal options must be trained and psychologically conditioned to the possibility of killing.

While training and preparation may influence and provide indicators of how each individual may react to hostile threats, each of the factors will be shaped by the particular situation of the individual prior to and during the critical instant which requires him to apply lethal force. While no two situations will be the same, reasonable assumptions regarding the immediate surroundings and their impact on the individual soldier or Marine can be reasonably made.

The attractiveness of the target will increase with time. Initially, the individual soldier or Marine is likely to feel empathy toward those who may ultimately seek his destruction—particularly when involved in peace keeping or humanitarian missions. As the threat level increases and lower end force options become necessary, however, the individual will begin to feel increasing levels of fear and insecurity. No doubt, when a hostile individual or group becomes so belligerent and threatening as to call for the application of lethal force, the initial feelings of empathy are quickly forgotten, and the target indeed becomes attractive. The span of time over which such attractiveness increases will have an impact, but undoubtedly the threat of immediate death will compel the individual soldier or Marine to transition to lethal force. His training will determine how long such a transition takes.

As yet unpublished doctrine for the employment of non-lethal technologies calls for all non-lethal forces to be backed up by lethal forces, snipers, and designated marksmen. Because he is supported by forces designed to engage hostile elements outside the range of his own (non-lethal) weapons system, the individual soldier or Marine forced to make the transition to lethal force will likely be required to engage his target at a short distance, probably within 50 meters. The key factor in killing an adversary at such ranges is the undeniable certainty of responsibility of the killer.<sup>58</sup> As the enemy draws near and becomes clearly visible to the killer, it becomes difficult for the killer to deny the humanity of the target. At this range the interpersonal nature of the killing has shifted, and instead of shooting at another uniform, the killer must shoot at a person.<sup>59</sup> While psychologists suggest that most individuals simply cannot or will not kill in such cases, the lethality of the weapon possessed by the potential killer is

irrelevant. The aversion to killing is as strong for the individual armed with lethal weaponry as it is for the individual armed with non-lethal weaponry. Only through training can the impact of such an aversion be influenced.

The third enabling factor is the aggressive predisposition of the killer. The individual's predisposition is influenced by the environment, individual genetics, and training.<sup>60</sup> The soldier in combat or near-combat will certainly be influenced by his environment, and if one assumes that violence begets violence, the seeds of aggression may be sown simply by an escalating situation. The studies of Doctor Michael Grossman and others produced strong evidence that there exists in some individuals a genetic predisposition for aggression: "In all species the best hunter, the best fighter, the most aggressive male, survives to pass his biological predisposition on to his descendants."<sup>61</sup> Obviously, it is impossible to predict which individuals possess such a predisposition. The one influence on the individual's predisposition which can be affected is training. Both traditional marksmanship training on known-distance ranges and simulator training (use of pop-up targets with a feedback mechanism) are designed to condition the individual to fire accurately, and by doing so, kill his adversary. This training is critical for the rifleman, regardless of the weapon he ultimately carries in conflict. Employed in a hostile or violent environment, and possibly possessing a genetic predisposition for aggression, the well-trained individual armed with non-lethal technologies can in fact be a killer.

The demands of authority, as well as his own sense of right and wrong, will provide legitimacy for the individual's actions in combat. The proximity of the authority figure to the killer, the killer's respect for the authority figure, and the intensity of the

authority figure's demands for a kill either contribute to or detract from the individual's ability to engage with lethal force. While the characteristics of the distributed battlefield will often preclude the near presence of a company or platoon commander, the individual soldier or Marine will in most cases be within earshot of his team leader. The aggressive, tactically competent, and professional junior leader is as important to the individual combatant in an OOTW environment as he is in one of conventional combat. Strong, effective junior leaders and cohesive small units enable individual soldiers and Marines to protect themselves and accomplish the mission. When the situation dictates, making the transition to lethal force will be legitimized by the demands of authority.

The individual soldier or Marine is not alone. In organization, thought, and action, he is part of a larger unit. The degree to which he identifies with that unit profoundly impacts his actions and thought processes. Most of the factors that enable killing can be seen in the diffusion of responsibility that exists in an execution by a firing squad.<sup>62</sup> The small unit leader provides the authority, the squad itself regulates acceptable behavior and provides a degree of absolution, and knowledge that the potential victim is posing a deadly threat provides reason for the kill. The effectiveness of this "firing squad," and each individual member, depends on training, small unit cohesion and leadership. Given all three, the individual armed with non-lethal options can overcome his resistance to killing and make the transition to lethal force.

## VII CONCLUSION

*"Thus those unable to understand the dangers inherent in employing troops are equally unable to understand the advantageous ways of doing so."*<sup>63</sup>

Sun Tzu

Early in this decade, the United States faced a changing world, and the nation's leaders realized that a corresponding change in policy and strategy was required. The Cold War policy of containment, centered on maintaining and protecting an alliance of friendly nations, has been expanded to a policy of engagement and enlargement which leverages both the strengths of the past and the opportunities for the future. In 1993, Anthony Lake, Assistant to the President for National Security Affairs, stated, "We have the blessing of living in the world's most powerful and respected nation at a time when the world is embracing our ideals as never before. We can let this moment slip away. Or we can mobilize our nation in order to enlarge democracy, enlarge markets, and enlarge our future."<sup>64</sup> This attitude was reflected in the 1992 National Security Strategy, which called for engaging and enlarging our influence and interests throughout the world, and sharing with others the benefits of a free market democracy.<sup>65</sup>

While American ideals appear to be enjoying favor in other nations, today's world remains one of strife and conflict. The U. S. military has responded to threats across the spectrum of conflict: from disaster relief and peace operations in Liberia, Somalia, Haiti, and Bosnia, to higher end threats in the Persian Gulf, Korea, and the Taiwan Straits. The decisions of policy makers to intervene in places where stability is threatened and U. S. interests are at risk have resulted in increased operational tempo and an increased span of mission requirements for the armed forces.

The requirement for U. S. forces to address conventional high end threats as well as those threats generated by natural disasters, economic deprivation and ethnic and religious conflict demands maximum flexibility in terms of doctrine, organization, tactics and equipment. The low, mid-, and high intensity conflict approach of the past, while helpful, must be expanded to include disaster relief, humanitarian, and peace operations. In all of these operations, military forces must be both capable and prepared to apply the *appropriate* level of force to a potential adversary. Non-lethal technologies provide an increased range of responses to military planners.

While non-lethal technologies may increase U. S. warfighting effectiveness and strengthen multinational coalitions by decreasing casualties, minimizing collateral damage and controlling conflict escalation, their use may also send a signal of an unwillingness to employ lethal force, thereby escalating the enemy's response.<sup>66</sup> The military regime must consider such possibilities, not only while developing doctrine and tactics for the employment of non-lethal alternatives, but also while training and preparing individual soldiers and Marines for contingencies which call for their use. Factors such as the impact of ROE and the American media will also influence situations in which non-lethal technologies are employed.

The non-lethal technologies employed by U. S. Marines and soldiers in Somalia, Haiti, and Bosnia have created a flurry of attention and a fair amount of controversy. While recognized as potentially helpful in avoiding unnecessary death and suffering, these technologies are seen by many as inadequate in protecting the individual soldiers and Marines who wield them. By arming the individual with both non-lethal and lethal means of force, military leaders have sought to counter the dissenting view. The degree

of protection provided by such an approach, however, depends on the individual's ability to transition from non-lethal to lethal force.

Just as the decision to employ non-lethal alternatives must be pushed to the lowest possible levels, so too should be the decision to transition to lethal force should the situation so dictate. Yet, there is considerable risk in doing so. Planners must realize that operations in which non-lethal alternatives are likely to be used are characterized by fluid, rapidly-changing situations. At a given moment, the force required for conflict de-escalation, self protection, or mission accomplishment may be at virtually unforeseen point along the force continuum. The decision cycle for the individual soldier or Marine will be short, stressful, and confusing. Further complicating the decision cycle are the physical, legal and psychological factors associated with the transition to lethal force.

The effective use of non-lethal weapons, and the ability to transition to conventional lethal means when the situation dictates, involves thorough and efficient training, planning, and detailed preparation. Detailed, progressive training in the use of non-lethal weapons and munitions, as well as drills and rehearsals for switching to lethal options, will build individual confidence and ensure effective employment. Tactical plans must provide an all-lethal backup force to forces armed with non-lethal options, and should be tailored to provide the maximum flexibility and freedom of action for the non-lethal force. Detailed preparation, in the form of scenario-based rehearsals, should simulate worst-case situations when escalation of force and the accompanying application of deadly force ROE are required. Every measure taken in the preparation of the individual soldier or Marine must have a dual goal of mission accomplishment and force protection. Properly trained and prepared, the individual armed with a combination

of non-lethal technologies and traditional conventional weapons, maintains a flexible force response capability which will increase his chances of success along a wide spectrum of tactical situations.

By allowing the application of force along the entire force continuum, emerging non-lethal force capabilities fill a gap between the verbal warning and the application of lethal force. These technologies are an appropriate means of dealing with the problems faced by U.S. forces responding to contingencies characteristic of the modern battlefield, where boundaries disappear and the enemy routinely melts into the environment. Regardless of the weapons or tactics involved, forces committed to volatile environments are at risk--risk weighed against political goals and possible benefits. While maintaining public support and accomplishing the mission will never be easy, non-lethal technologies provide operational and tactical commanders increased flexibility in bringing to bear the appropriate level of force.



## Appendix 1. General Capabilities of Types of Non-Lethal Weapons

GENERAL TYPES OF NLW	DESCRIPTION OF GENERAL CAPABILITIES	EXAMPLES*
KINETICS	Systems that provide capability to stun personnel without penetration; subdue or immobilize personnel; or disable or disperse groups of people.	Blunt impact, stun weapons, water cannons
ENTANGLEMENTS	Systems that prevent movement of personnel by binding or reducing traction to capture or ensnare, or filling a space to immobilize without harming occupants of a space.	Super adhesives, binding coatings, anti-traction entanglers, containment devices, enclosure fillers
VEHICLE STOPPERS	Systems that either stop vehicle movement by either reducing traction to zero; disrupting or destroying engine electronics; making the engine cease operation; stopping combustion; or turning fuel into non-combustible substance.	Electromagnetic pulses, binding coatings, high voltage shock, non-nuclear, tire attackers (caltrops), filter clogs, fuel additives
ACOUSTICS †	Systems that use acoustic pressure/sound waves to cause discomfort or disorient personnel, or to synthesize voices or images to deceive/gain access.	Infrasound, ultrasound, noise, voice synthesis, voice morphing
DIRECTED ENERGY †	Narrow-frequency electromagnetic systems used disable electronics equipment and/or vital vehicle/system components, or do distract or disable personnel.	Laser and radio frequency devices.
RIOT CONTROL	Systems that use high-intensity lights, broadband optical sources, or chemical obscurants to temporarily stun/dazzle personnel; provide ability to persuade groups to act against their self interest; conveniently mark personnel for later identification; or obscure observation or disorient.	Irritants, strobe lights, broad-band optical munitions, deceptors, markers, chemical obscurants
CHEMICAL SUBSTANCES	A family of inorganic and organic substances that can be used to incapacitate personnel; drive personnel from an area; make an area uninhabitable; create barriers; attack materials' structural integrity; obscure optics; disable/reduce trafficability of soil.	Incapacitating substances, maloporous, irritants, combustible dispensants, aqueous foams, materiel optical coatings, etc.
<p>* Not an all- inclusive list of specific technologies within any general category.</p> <p>† These types of NLWs are under advanced development and not yet ready for operation employment.</p>		

## Appendix 2. Weapons, Munitions and Equipment

### 1. 40mm munitions

<u>Munitions</u>	<u>No. of Projectiles</u>	<u>Min Range</u>	<u>Max Effective Range</u>
a. No. 40B, stinger cartridge	24	15' 20'	50' (skip fired) 40' (center mass)
b. No. 40W, wood baton round	3	30'	150' (skip fired)
c. No. 2504, bean bag round	3	40'	200' (center mass)
d. No. 40F, foam rubber round	3	15' 20'	50' (skip fired) 40' (center mass)
e. Sponge grenade	1	20'	75' (center mass)

### 2. 12 Gauge Shotgun munitions

a. 23BR #3025 bean bag round	1	20'	50' (center mass)
b. 23RP #3020 rubber pellet cartridge	15	15'	50' (center mass)
c. 23WB #3018 wood baton rd	1	21'	50' (skip fired)

### 3. Oleoresin Capsicum (OC) devices

<u>Model</u>	<u>Min. Safe Dist (ft)</u>	<u>Effective Dist (ft)</u>	<u>Avg ½ Sec Burst</u>
a. Mk - 4	3'	10 - 12	3 - 4
b. Mk - 9	3'	15 - 20	8 - 10
c. Mk - 46	3'	25 - 30	24

### 4. Caltrops

A personnel and vehicular barrier device made of 3/8 inch steel with four projecting spikes so arranged that when three of the spikes are on the ground, the fourth points upward.

### 5. Stinger Grenades

- a. Model 15 sting ball grenade has an approximate hand thrown range of 30-35 yards and, with an air burst, disperses pellets in a 50' diameter.
- b. Water balloon launching device extends range beyond 75 yards.

### 6. Mark 141 Diversionary Device (flash bang)

- a. Average throwing distance is approximately 25-30 yards.
- b. Does not stun, but causes a temporary sensory overload making countermeasures unlikely. Normal duration of effect is under eight seconds. Temporary threshold shift of hearing lasts from 20 minutes to 4-6 hours for a single unprotected exposure at a range of five feet.

## **Appendix 2. Weapons, Munitions and Equipment (cont'd)**

### **7. Sandia National Laboratories Sticky Foam**

Sticky foam is an exceptionally tacky and tenacious material that was originally developed to provide additional delay in nuclear security systems. The foam is non-hardening, single component material that is essentially non-toxic. Expansion ratios of the foam typically are greater than 30:1 and the foam strengths are on order of magnitude greater than naturally occurring materials such as molasses. The foam is used to block passageways, entomb assets, or entangle adversaries to increase security task times.

### **8. Sandia National Laboratories Aqueous Foam**

Aqueous foam concentrate when mixed with water provides a high expansion ratio and highly stable foam which can be used as a delaying device to reduce friction on roadways or walls, create barriers inside confined areas, and enhance standard wire barriers when mixed with a chemical irritant such as OC. It can be used as a crowd dispersing agent when mixed with OC and discharged by pumping equipment, such as a fire truck, providing increased standoff distances.

### Appendix 3. Structure of a Non-Lethal Weapons Force

#### Riot Control Platoon (1/41)

#### Table of Organization

#### Platoon Commander

#### Platoon Sergeant

<u>1<sup>st</sup> Squad</u>		<u>2<sup>nd</sup> Squad</u>		<u>3<sup>rd</sup> Squad</u>	
Squad Leader	M16A2	Squad Leader	M16A2	Squad Leader	M16A2
Team Leader	M16A2	Team Leader	M16A2	Team Leader	Shotgun
Team Member	M16A2/Shield	Team Member	M16A2/Shield	Grenadier	M16A2/M203
Team Member	M16A2	Team Member	M16A2	Grenadier	M16A2/M203
Team Member	M249/Shield	Team Member	M16A2/Shield	Team Member	Shotgun
Team Leader	M16A2	Team Leader	M16A2	Team Leader	Shotgun
Team Member	M16A2/Shield	Team Member	M16A2/Shield	Grenadier	M16A2/M203
Team Member	M16A2	Team Member	M16A2	Grenadier	M16A2/M203
Team Member	M249/Shield	Team Member	M16A2/Shield	Team Member	Shotgun
Team Leader	M16A2	Team Leader	M16A2	Team Leader	M9 Pistol/Baton
Team Member	M16A2/Shield	Team Member	M16A2/Shield	Escort	M9 Pistol/Baton
Team Member	M16A2	Team Member	M16A2	Escort	M9 Pistol/Baton
Team Member	M249/Shield	Team Member	M16A2/Shield	Escort	M9 Pistol/Baton

#### NOTES

1. All members are armed with face shields and batons.
2. Weapons from 1<sup>st</sup> and 2<sup>nd</sup> squad will be grounded when the platoon is participating in a riot situation.
3. Squads, or the whole platoon, could be used in handling riots, depending on the situation.
4. Squad leaders could be armed with a MK-9 canister of O.C. spray.
5. All members of 3<sup>rd</sup> squad are armed with O.C. spray, non-lethal M203/12 gauge shotgun munitions covered by lethal M16A2/(mm munitions.
6. A designated marksman should be assigned within each riot control platoon.

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## ENDNOTES

<sup>1</sup> Sun Tzu, The Art of War, trans. Samuel B. Griffith, (New York: Oxford University Press, 1963), 77.

<sup>2</sup> Martin van Creveld, The Transformation of War, (New York: The Free Press, 1991), 197.

<sup>3</sup> Colonel Gary W. Anderson, "Marine Corps Planning System for Integrating Nonlethal Weapons into Combined Arms MAGTF Operations," The Air Land Sea Bulletin, Issue No. 97-2 (August 1997): 4.

<sup>4</sup> Sheehan, John J., General, USMC. "Non-Lethal Weapons: Let's Make It Happen." Non-Lethal Defense Conference II, 7 March 1996.

<sup>5</sup> Ibid.

<sup>6</sup> Department of Defense Directive 3000.3, "Policy for Non-Lethal Weapons," 9 July 1996.

<sup>7</sup> "Draft Publication NLW: Multi-Service Tactics, Techniques and Procedures for the Employment of Non-Lethal Weapons," a draft publication currently being coordinated at the Joint Service level by the Non-Lethal Coordination Cell at the Air Land Sea Application (ALSA) Center, Langley Air Force Base, Hampton, VA., 24.

<sup>8</sup> Ibid., 25.

<sup>9</sup> Ibid.

<sup>10</sup> A Marine Expeditionary Unit (MEU) is a task-organized Marine Air-Ground Task Force (MAGTF) of approximately brigade strength. It is composed of a Command Element (CE) led by a Colonel; a Ground Combat Element (GCE), consisting of a reinforced infantry battalion; an Aviation Combat Element (ACE), consisting of a composite helicopter squadron (reinforced by attack fixed wing and rotary wing assets); and a MEU Service Support Group (MSSG), which provides tactical logistical support. MEUs support short-term contingency missions world wide. Three MEUs deploy from Camp Pendleton, California; three deploy from Camp Lejeune, North Carolina, and one MEU deploys from Okinawa, Japan. At any given time, at least two MEUs are deployed in various theaters around the world.

<sup>11</sup> Government Accounting Office (GAO Code 701054). National Security and International Affairs Division. "The Training of U.S. Military Forces for Peace Operations," by Elizabeth Guran, United States General Accounting Office, Washington, D.C., April 25, 1995.

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<sup>12</sup> Headquarters, I Marine Expeditionary Force. "Staff Study: Task Organization and Table of Equipment for Riot Control Platoon." Camp Pendleton, CA: July, 1996.

<sup>13</sup> Draft Publication NLW, 25.

<sup>14</sup> Ibid., 52.

<sup>15</sup> Ibid., 52-53.

<sup>16</sup> I Marine Expeditionary Force, "Operation UNITED SHIELD After Action Report," Camp Pendleton, CA., 7 June 1995, Enclosure (2), 7.

<sup>17</sup> Draft Publication NLW, 45.

<sup>18</sup> Ibid.

<sup>19</sup> The Commanding General of I Marine Expeditionary Force retains operational control of three Marine Expeditionary Units, the 11<sup>th</sup>, 13<sup>th</sup> and 15<sup>th</sup> MEUs. At some point during a MEU's deployment, operational control is transferred to the Commander-in-Chief (CINC) of the theater in which the MEU is operating.

<sup>20</sup> I Marine Expeditionary Force, Enclosure (2), 6.

<sup>21</sup> Draft Publication NLW, 49.

<sup>22</sup> Major William J. Neinast, "United States Use of Biological Warfare," Military Law Review 4, (1964): p. 17.

<sup>23</sup> Charles Heal, "Making, Not Breaking, the Rules," Jane's International Defense Review, (September, 1997): p. 78.

<sup>24</sup> Ibid.

<sup>25</sup> Joint doctrine "delineates six MOOTW principles: objective, unity of effort, security, restraint, perseverance and legitimacy." Department of Defense, Joint Pub 3-07, Joint Doctrine for Military Operations Other Than War, (Washington, D.C.: National Defense University Press, 1995), viii.

<sup>26</sup> Office of the Chairman, Joint Chiefs of Staff, JCS Instruction 3121.01 "Standing Rules of Engagement for U.S. Forces." (Washington, D.C.: 1 October 1994).

<sup>27</sup> Major Vaughn Ary, "New Rules of Engagement for Today's Missions," an unpublished paper provided by the author. Major Ary is a lawyer in the United States

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Marine Corps who served on the Joint Staff from 1994 to 1997, and is currently assigned to the U.S. Marine Command and General Staff College.

<sup>28</sup> United Nations Charter Article 42 authorizes the Security Council to "take such action by air, sea, or land forces as may be necessary to maintain or restore international peace and security. Such action may include demonstrations, blockade, and other operations by air, sea or land forces of Members of the United Nations." United Nations, Charter of the United Nations, 1945. [UN Home Page], available from <http://www.undcp.org/charter.html>, accessed on internet 18 October 97.

<sup>29</sup> F. M. Lorentz, "Non-Lethal Force: The Slippery Slope to War?", Parameters, Vol XXVI, No. 3, (Autumn 1996): p. 55.

<sup>30</sup> I Marine Expeditionary Force, Enclosure (1), 5.

<sup>31</sup> Ibid., Enclosure (1), 6.

<sup>32</sup> Ibid., Enclosure (1), 9.

<sup>33</sup> Ary, 5.

<sup>34</sup> S.L.A. Marshall, Men Against Fire: The Problem of Battle Command (Gloucester Mass.: Peter Smith, 1978), 78.

<sup>35</sup> David A. Grossman, "Defeating the Enemy's Will: The Psychological Foundations of Maneuver Warfare," in Maneuver Warfare: An Anthology, ed. Richard D. Hooker (Novato, CA: Presidio Press, 1993) 165.

<sup>36</sup> Ben Shalit, The Psychology of Conflict and Combat, (New York: Praeger Publishers, 1988), 56.

<sup>37</sup> John Keegan, The Face of Battle, (New York: Viking Penguin, 1976), 278-279.

<sup>38</sup> Grossman, "Defeating the Enemy's Will: The Psychological Foundations of Maneuver Warfare," 168, 169.

<sup>39</sup> Shalit, 56.

<sup>40</sup> Grossman, "Defeating the Enemy's Will: The Psychological Foundations of Maneuver Warfare," 173, 174.

<sup>41</sup> Ibid.

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- <sup>42</sup> Ibid., 169.
- <sup>43</sup> Lexi R. Alexander and Julia L. Klare, "Nonlethal Weapons: New Tools for Peace," Issues in Science and Technology, (Winter 1995/96): 68.
- <sup>44</sup> I Marine Expeditionary Force, Enclosure (2), 3.
- <sup>45</sup> Ibid.
- <sup>46</sup> Ibid., Enclosure (1), 5.
- <sup>47</sup> Ibid., Enclosure (2), 4.
- <sup>48</sup> Ibid., 5.
- <sup>49</sup> Ibid., Enclosure (2), 6.
- <sup>50</sup> Ibid., Enclosure (2), 7.
- <sup>51</sup> Ibid., Enclosure (2), 10.
- <sup>52</sup> Ibid., Enclosure (1), 8.
- <sup>53</sup> Ibid., 6.
- <sup>54</sup> Ibid., 8.
- <sup>55</sup> Ibid., 18.
- <sup>56</sup> Ibid., Enclosure (1), 8.
- <sup>57</sup> Ibid., Enclosure (4), 40.
- <sup>58</sup> David A. Grossman, On Killing, (Boston, Mass: Little, Brown and Company, 1995) 114.
- <sup>59</sup> Ibid., 119.
- <sup>60</sup> Ibid., 189.
- <sup>61</sup> Ibid., 182.
- <sup>62</sup> Ibid., 191.



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<sup>63</sup> Sun Tzu, The Art of War, trans. Samuel B. Griffith, (New York: Oxford University Press, 1963), 73.

<sup>64</sup> Lieutenant General Anthony Zinni and Colonel Gary Ohls, "No Premium on Killing," Proceedings, (December 1996) 26.

<sup>65</sup> The White House, A National Security Strategy of Engagement and Enlargement, (Washington, D.C.: U.S. Government Printing Office, 1996), ii.

<sup>66</sup> Coppernoll, Margaret-Anne. "The Non-Lethal Weapons Debate," Thesis, U.S. Naval Postgraduate School, 1996. p 14

---

## BIBLIOGRAPHY

### BOOKS

- Durch, William J. The Evolution of UN Peacekeeping: Case Studies and Comparative Analysis. New York, NY: St. Martin's Press, 1993.
- Grossman, David A. On Killing. Boston, Mass: Little, Brown and Company, 1995.
- Hooker, Richard D., editor. Manuever Warfare: An Anthology. Novato, CA: Presidio Press, 1993.
- Keegan, John. The Face of Battle. New York, Viking Penguin, 1976.
- Marshall, S. L. A. Men Against Fire: The Problem of Battle Command. Gloucester, Mass, Peter Smith, 1978.
- Morehouse, David A. Nonlethal Weapons: War Without Death. Westport, CT: Praeger, 1996.
- Shalit, Ben. The Psychology of Conflict and Combat. New York, NY: Praeger Publishers, 1988.
- Sun Tzu. The Art of War. trans. Samuel B. Griffith. New York: Oxford University Press, 1963.
- Toffler, Alvin and Heidi. War and Anti-War. New York, NY: Little, Brown and Company, 1993.
- Van Creveld, Martin. The Transformation of War. New York, NY: Free Press, 1991.

### ARTICLES

- Anderson, Gary W. "Marine Corps Planning System for Integrating Non-Lethal Weapons into Combined Arms MAGTF Operations." The Air Land Sea Bulletin, Issue No. 97-2, (August 1997): 4.
- Alexander, Lexi R. and Klare, Julia L. "Nonlethal Weapons: New Tools for Peace." Issues in Science and Technology, (Winter 1995-96): 67-74.

- 
- Becker, Jon B. and Heal, Charles. "Less-Than-Lethal Force." Jane's International Defense Review, (February 1996): 62-64.
- Bunker, Robert J. "Epochal Change: War Over Social and Political Organization." Parameters, (Summer 1997): 15-25.
- Cook, Joseph W., Fiely, David P. and McGowan, Maura T. "Non-Lethal Weapons, Technologies, Legalities, and Potential Policies." Journal of Legal Studies, (Winter 1994): 23-43.
- Dworken, Jonathan T. "Rules of Engagement: Lessons from Restore Hope." Military Review, (September 1994): 26-34.
- Evancoe, Paul R. "Non-Lethal Technologies Enhance Warrior's Punch." National Defense, (December 1993): 26-29.
- Fuller, Fred L. "New Order Threat Analysis: A Literature Survey." Marine Corps Gazette, (April 1997): 46-48.
- Goodman, Glenn W. "Upping the Nonlethal Ante." Armed Forces Journal International, (July 1994): 13.
- Heal, Charles. "Nonlethal Technology and the Way We Think of 'Force'." Marine Corps Gazette, (January 1997): 26-28.
- Heal, Charles. "'Making, Not Breaking, the Rules.'" Jane's International Defense Review, (September 1997): 78.
- Kaplan, Robert D. "The Coming Anarchy." The Atlantic Monthly, (February, 1994): 44-76.
- Kish, Steve C. "Do We Need an Information Warrior?" Marine Corps Gazette, (January 1997): 20-22.
- Lorenz, F. M. "Non-Lethal Force: The Slippery Slope to War?" Parameters, (Autumn 1996): 52-62.
- Lorenz, F. M. "Confronting Thievery in Somalia." Military Review, (August 1994): 46-55.
- Neinast, William J. "United States Use of Biological Warfare." Military Law Review 4, (1964): 17.

- 
- Ohls, Gary and Zinni, Anthony. "No Premium on Killing." Proceedings, (December 1996): 26-28.
- Pasternak, Douglas. "Wonder Weapons." U. S. News and World Report, (July 7, 1997): 8-10.
- Polidoro, John. "Marine Corps Tankers in Haiti." Marine Corps Gazette, (July, 1997): 46-47.
- Sapolsky, Harvey M. and Shapiro, Jeremy. "Casualties, Technology, and America's Future Wars." Parameters, (Summer 1996): 119-127.
- Stanton, Martin N. "What Price Sticky Foam?" Parameters, (Autumn, 1996): 63-68.

#### GOVERNMENT PUBLICATIONS

- Department of the Army. TRADOC Pamphlet 525-73: Concept for Non-Lethal Capabilities in Army Operations. Washington, DC: Department of the Army, 1 September, 1996.
- Department of Defense. Draft Publication NLW: Multiservice Tactics, Techniques and Procedures for the Employment of Non-Lethal Weapons. Langley, VA: Air Land Sea Application (ALSA) Center, July 1997.
- Department of Defense. Directive Number 3000.3 Policy for Non-Lethal Weapons. Washington, D.C.: 9 July 1996.
- Department of Defense. Joint Pub 3-07 Joint Doctrine for Military Operations Other Than War. Washington, D.C.: National Defense University Press, 1995.
- Headquarters, I Marine Expeditionary Force. "Staff Study: Task Organization and Table of Equipment for Riot Control Platoon." Camp Pendleton, CA: July 1996.
- Office of the Chairman, Joint Chiefs of Staff. JCS Instruction 3121.01 Standing Rules of Engagement for U.S. Forces. Washington, D.C.: 1 October 1994.
- United Nations. Charter of the United Nations. 1945. [UN Home Page]; available from <http://www.undcp.org/charter.html>; Internet; accessed 18 Oct 97.
- US Marine Corps. Operation UNITED SHIELD After Action Report, I Marine Expeditionary Force. Camp Pendleton, CA: 7 June 1995.

---

The White House. A National Security Strategy of Engagement and Enlargement.  
Washington, D.C.: U.S. Government Printing Office, 1996.

### STUDIES

Bunker, Robert J. and Moore, T. Lindsay. Nonlethal Technology and Fourth Epoch War: A New Paradigm of Politico-Military Force. Arlington, VA: AUSA Institute of Land Warfare, February, 1996.

Liu, F. T. United Nations Peacekeeping and the Non-Use of Force. New York, NY: International Peace Academy, 1992.

Lynch, G.R. Role of Non-Lethal Weapons in "Special Wars." Monterey, CA: Naval Postgraduate School, March, 1995.

Meyer, Greg. Nonlethal Weapons Versus Conventional Police Tactics: The Los Angeles Police Department Experience. Los Angeles, CA: California State University, 1991.

Morehouse, David A. A New Strategic Era: A Case For Non-Lethal Weapons. Fort Leavenworth, KS: Command and General Staff College, 1992.

Pope, Stephen R. Nonlethality and Peace Operations. Fort Leavenworth, KS: Command and General Staff College, 1995.

### SPEECHES

Sheehan, John J. General, USMC. "Non-Lethal Weapons: Let's Make It Happen."  
Non-Lethal Defense Conference II, 7 March 1996.

### UNPUBLISHED PAPERS

Ary, Vaughn. New Rules of Engagement for Today's Missions. Thesis, U.S. Marine Corps Command and Staff College, 1997.

Coppernoll, Margaret-Anne. The Non-Lethal Weapons Debate. Thesis, U.S. Naval Postgraduate School, 1996.